

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A mobile communication system including a core network having a node with a packet switching function for packet data communication, a radio network controller, and a mobile terminal, wherein a Signaling Connection Control Part (SCCP) signaling connection for the packet data communication and a broadcast or multicast service is set on an interface between the radio network controller and the core network, the mobile communication system further comprising:

connection setting means for setting the SCCP signaling connection for multicast data communication separately from the SCCP signaling connection for the packet data communication, wherein,

 said radio network controller initiates the SCCP signaling connection for the packet data communication, and

 said core network initiates the SCCP signaling connection for the broadcast or multicast service.

2. (Original) The mobile communication system according to claim 1, wherein the connection setting means sets the connection for the multicast data communication in common to a plurality of mobile terminals that attempt to receive a service of the multicast data communication.

3. (Original) The mobile communication system according to claim 2, wherein the connection setting means sets the connection for the multicast data communication in

Best Available Copy

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

response to a service receiving request from a first mobile terminal attempting to receive the multicast data communication service.

4. (Original) The mobile communication system according to claim 2, further comprising:
a first connection releasing means for releasing the connection for the multicast data communication in response to a service leaving request from a last mobile terminal receiving the multicast data communication service.

5. (Original) The mobile communication system according to claim 1, wherein the connection setting means sets the connection for the multicast data communication individually to each of the plurality of the mobile terminals that attempt to receive the multicast data communication service.

6. (Original) The mobile communication system according to claim 5, further comprising:
a second connection releasing means for, in response to the multicast data communication service leaving request from each of the plurality of mobile terminals, releasing the connection for the multicast data communication corresponding to the mobile terminal.

7. (Previously presented) The mobile communication system according to claim 1, wherein the connection for the multicast data communication in the mobile terminal is managed in a PS (Packet Switching) domain including an area for the packet switching function in the core network.

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

8. (Previously presented) The mobile communication system according to claim 1, wherein the connection for the multicast data communication in the mobile terminal is managed in a domain dedicated to the multicast data communication which is different from a PS (Packet Switching) domain including the area for the packet switching function in the core network.

9. (Currently amended) A method of controlling operations in a mobile communication system including a core network having a node with a packet switching function for packet data communication, a radio network controller, and a mobile terminal, wherein a Signaling Connection Control Part (SCCP) signaling connection for the packet data communication and a broadcast or multicast service is set on an interface between the radio network controller and the core network, the method comprising:

setting the SCCP signaling connection for multicast data communication separately from the SCCP signaling connection for the packet data communication, wherein,

the radio network controller initiates the SCCP signaling connection for the packet data communication, and

the core network initiates the SCCP signaling connection for the broadcast or multicast service.

10. (Previously presented) The method according to claim 9, wherein setting the connection for multicast data communication includes setting the connection for the multicast data communication in common to a plurality of mobile terminals that attempt to receive a service of the multicast data communication.

11. (Previously presented) The method according to claim 10, wherein setting the connection for multicast data communication includes setting the connection for the multicast

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

data communication in response to a service receiving request from a first mobile terminal attempting to receive the multicast data communication service.

12. (Original) The method according to claim 10, further comprising:

a first connection releasing step of releasing the connection for the multicast data communication in response to a service leaving request from a last mobile terminal receiving the multicast data communication service.

13. (Previously presented) The method according to claim 9, wherein setting the connection for multicast data communication includes setting the connection for the multicast data communication individually to each of the plurality of the mobile terminals that attempt to receive the multicast data communication service.

14. (Original) The method according to claim 13, further comprising:

a second connection releasing step of, in response to the multicast data communication service leaving request from each of the plurality of mobile terminals, releasing the connection for the multicast data communication corresponding to the mobile terminal.

15. (Currently amended) A node in a mobile communication system including a core network having a node with a packet switching function for packet data communication, a radio network controller, and a mobile terminal, wherein a Signaling Connection Control Part (SCCP) signaling connection for the packet data communication and a broadcast or multicast service is set on an interface between the node network and the radio network controller, the node in the mobile communication system further comprising:

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

connection setting means for setting the SCCP signaling connection for multicast data communication from the SCCP signaling connection for the packet data communication, wherein,

said radio network controller initiates the SCCP signaling connection for the packet data communication, and

said core network initiates the SCCP signaling second connection for the broadcast or multicast service.

16. (Original) The node according to claim 15, wherein the connection setting means sets the connection for the multicast data communication in common to a plurality of mobile terminals that attempt to receive a service of the multicast data communication.

17. (Original) The node according to claim 16, wherein the connection setting means sets the connection for the multicast data communication in response to a service receiving request from a first mobile terminal attempting to receive the multicast data communication service.

18. (Original) The node according to claim 16, further comprising:

a first connection releasing means for releasing the connection for the multicast data communication in response to a service leaving request from a last mobile terminal receiving the multicast data communication service.

19. (Original) The node according to claim 15, wherein the connection setting means sets the connection for the multicast data communication individually to each of the plurality of the mobile terminals that attempt to receive the multicast data communication service.

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

20. (Original) The node according to claim 19, further comprising:
a second connection releasing means for, in response to the multicast data communication service leaving request from each of the plurality of mobile terminals, releasing the connection for the multicast data communication corresponding to the mobile terminal.

21. (Currently amended) A computer-readable program, comprising machine-readable medium encoded with a set of machine-executable instructions ~~needed on a machine-readable medium~~, for making a computer execute operation controlling of a node in a mobile communication system including a core network having a node with a packet switching function for packet data communication, a radio network controller, and a mobile terminal, wherein a Signaling Connection Control Part (SCCP) signaling connection for the packet data communication and a broadcast or multicast service is set on an interface between the radio network controller and the core network, the program comprising:

setting the SCCP signaling connection for multicast data communication separately from the SCCP signaling connection for the packet data communication, wherein,
the radio network controller initiates the SCCP signaling connection for the packet data communication, and
the core network initiates the SCCP signaling connection for the broadcast or multicast service.

22. (Currently amended) The program-machine-readable medium according to claim 21, wherein setting the connection for multicast data communication includes setting the connection for the multicast data communication in connection to a plurality of mobile terminals that attempt to receive a service of the multicast data communication.

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

23. (Currently amended) The program-machine-readable medium according to claim 22, wherein setting the connection for multicast data communication includes setting the connection for the multicast data communication in connection to a service receiving request from a first mobile terminal attempting to receive the multicast data communication service.

24. (Currently amended) The program-machine-readable medium according to claim 22, further comprising:

a first connection releasing step of releasing the connection for the multicast data communication in response to a service leaving request from a last mobile terminal receiving the multicast data communication service.

25. (Currently amended) The program-machine-readable medium according to claim 21, wherein setting the connection for multicast data communication includes setting the connection for the multicast data communication individually to each of the plurality of the mobile terminals that attempt to receive the service of the multicast data communication service.

26. (Currently amended) The program-machine-readable medium according to claim 25, further comprising:

a second connection releasing step of, in response to the multicast data communication service leaving request from each of the plurality of mobile terminals, releasing the connection for the multicast data communication corresponding to the mobile terminal.

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

27. (Currently amended) A mobile communication system, comprising:

- a core network for packet switching; and
- a radio network controller which initiates a request for Signaling Connection Control Part (SCCP) signaling connection to said core network to set on an interface with said core network,

wherein, if a request is related to multimedia broadcast multicast service, said core network initiates a request for SCCP signaling connection to said radio network controller, instead of the request being initiated from said radio network controller.

28. (Previously presented) The mobile communication system claimed in claim 27, wherein a single signaling connection initiated for said multimedia broadcast multicast service is shared among a plurality of mobile terminals which receive common multimedia broadcast multicast service.

29. (Previously presented) The mobile communication system claimed in claim 28, wherein said single signaling connection for said multimedia broadcast multicast service is separately initiated from a signaling connection for packet service which is not said multimedia broadcast multicast service.

30. (Previously presented) The mobile communication system claimed in claim 28, wherein, when said single signaling connection for said multimedia broadcast multicast service is set and another mobile terminal requests for receiving said multimedia broadcast multicast service, the other mobile terminal receives said multimedia broadcast multicast service by using said single signaling connection.

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

31. (Previously presented) The mobile communication system claimed in claim 30, wherein said core network releases said single signaling connection for said multimedia broadcast multicast service in response to a multimedia broadcast multicast service leaving request from a last mobile terminal receiving said multimedia broadcast multicast service.

32. (Previously presented) The mobile communication system claimed in claim 30, wherein, in response to a multimedia broadcast multicast service leaving request from each of said plurality of mobile terminals, said core network releases the signaling connection for said multimedia broadcast multicast service corresponding to the mobile terminal.

33. (Currently amended) A method of controlling operation in a mobile communication system including a core network for packet switching, and a radio network controller which initiates a request for Signaling Connection Control Part (SCCP) signaling connection to said core network to set on an interface with said core network, the method comprising:

if a request is related to multimedia broadcast multicast service, initiating a request for SCCP signaling connection to said radio network controller, instead of initiating the request from said radio network controller, network controller.

34. (Previously presented) The method claimed in claim 33, wherein said initiating a request includes setting single signaling connection initiated for said multimedia broadcast multicast service to be shared among a plurality of mobile terminals those of which receive common multimedia broadcast multicast service.

35. (Previously presented) The method claimed in claim 34, wherein said initiating includes setting said single signaling connection for said multimedia broadcast multicast service to be

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

separately initiated from signaling connection for packet service which is not said multimedia broadcast multicast service.

36. (Previously presented) The method claimed in claim 34, wherein, when said single signaling connection for said multimedia broadcast multicast service is set and the other mobile terminal requests for receiving said multimedia broadcast multicast service, the other mobile terminal receives said multimedia broadcast multicast service by using said single signaling connection.

37. (Previously presented) The method claimed in claim 36, further comprising:
releasing said single signaling connection for said multimedia broadcast multicast service in response to a multimedia broadcast multicast service leaving request from a last mobile terminal receiving said multimedia broadcast multicast service.

38. (Previously presented) The method claimed in claim 36, further comprising:
in response to a multimedia broadcast multicast service leaving request from each of said plurality of mobile terminals, releasing the signaling connection for said multimedia broadcast multicast service corresponding to the mobile terminal.

39. (Currently amended) A core network for a mobile communication system, comprising:
an SGSN (Serving GPRS (Global Packet Radio Service) Support Node to Node) to configure the core network and a radio network controller that is interconnected to said core network in said mobile communication system for a packet switching, said radio network controller initiating a request for Signaling Connection Control Part (SCCP) signaling connection to said core network to set on an interface with said core network,

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

wherinc, if a request is related to multimedia broadcast multicast service, said core network initiates a request for SCCP signaling connection to said radio network controller, instead of the request from said radio network controller.

40. (Previously presented) The core network claimed in claim 39, wherein single signaling connection initiated for said multimedia broadcast multicast service is shared among a plurality of mobile terminals those of which receive common multimedia broadcast multicast service.

41. (Previously presented) The core network claimed in claim 40, wherein said single signaling connection for said multimedia broadcast multicast service is separately initiated from signaling connection for packet service which is not said multimedia broadcast multicast service.

42. (Previously presented) The core network claimed in claim 40, wherein, when said single signaling connection for said multimedia broadcast multicast service is set and the other mobile terminal requests for receiving said multimedia broadcast multicast service, the other mobile terminal receives said multimedia broadcast multicast service by using said single signaling connection.

43. (Previously presented) The core network claimed in claim 42, wherein said core network releases said single signaling connection for said multimedia broadcast multicast service in response to a multimedia broadcast multicast service leaving request from a last mobile terminal receiving said multimedia broadcast multicast service.

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

44. (Previously presented) The core network claimed in claim 42, wherein, in response to a multimedia broadcast multicast service leaving request from each of said plurality of mobile terminals, said core network releases the signaling connection for said multimedia broadcast multicast service corresponding to the mobile terminal.

45. (Currently amended) A mobile communications system comprising:

a mobile terminal;

a core network for packet switching; and

a radio network controller to control a radio network; wherein a first Signaling Connection Control Part (SCCP) signaling connection for said mobile terminal and a second SCCP signaling connection for ~~a-a a~~ broadcast or multicast service are set on an interface between said core network and said radio network controller,

said radio network controller initiates said first SCCP signaling connection for said mobile terminal,

said core network initiates said second SCCP signaling connection for the broadcast or multicast service, and

said second SCCP signaling connection is set separately from said first ~~signal~~ SCCP signaling connection.

46. (Currently amended) The mobile communications system according to claim 45, further comprising:

a plurality of mobile terminals including said mobile terminals ~~terminal~~,

wherein said second ~~signal~~ signaling connection is shared among said plurality of mobile terminals.

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

47. (Previously presented) The mobile communications system according to claim 45, wherein said broadcast or multicast service comprises a multimedia broadcast multicast service (MBMS).

48. (Cancelled)

49. (Previously presented) The mobile communications system according to claim 45, wherein said first signaling connection comprises a PS Iu connection.

50. (Cancelled)

51. (Previously presented) The mobile communications system according to claim 46, wherein said second signaling connection is set in response to a joining request from one of said plurality of mobile terminals when none of said plurality of mobile terminals do not receive said second communications service.

52. (Currently amended) The mobile communications system according to claim 46, wherein said second ~~signal~~ signaling connection is released in response to a leaving request from one of said plurality of mobile terminals when only said one of said plurality of mobile terminals receive said second communications service.

53. (Currently amended) A mobile communications method used in a mobile communications system having a mobile terminal, a core network for packet switching and a radio network controller to control a radio network, comprising:

setting a first Signaling Connection Control Part (SCCP) signaling connection for said

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

mobile terminal on an interface between said core network and said radio network controller; and

setting a second SCCP signaling connection for a broadcast or multicast service separately from said first SCCP signaling connection on said interface, wherein

the radio network controller initiates said first SCCP signaling connection for said mobile terminal, and

the core network initiates said second SCCP signaling connection for the broadcast or multicast service.

54. (Previously presented) The mobile communications method according to claim 53, wherein said mobile communications system comprises a plurality of mobile terminals including said mobile terminal and said second signaling connection is shared among said plurality of mobile terminals.

55. (Previously presented) The mobile communications method according to claim 53, wherein said broadcast or multicast service comprises a multimedia broadcast multicast service (MBMS).

56. (Canceled)

57. (Currently amended) The mobile communications method according to claim 53, wherein said first signal signaling connection is a PS Iu connection.

58. (Canceled)

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

59. (Previously presented) The mobile communications method according to claim 54, wherein said second signaling connection is set in response to a joining request from one of said plurality of mobile terminals when none of said plurality of mobile terminals do not receive said second communications service.

60. (Previously presented) The mobile communications method according to claim 54, further comprising:

releasing said second signaling connection in response to a leaving request from one of said plurality of mobile terminals when only said one of said plurality of mobile terminals when only said one of said plurality of mobile terminals receive said second communications service.

61. (Currently amended) A mobile communications system comprising:

a mobile terminal;

a core network for packet switching; and

a radio network controller to control a radio network,

wherein a first Signaling Connection Control Part (SCCP) signaling connection for said mobile terminal and a second SCCP signaling connection for a broadcast or multicast service is set on an interface between said core network and said radio network controller,

said radio network controller initiates the first SCCP signaling connection for said mobile terminal, and

said core network initiates a request for said second SCCP signaling connection to said radio network controller.

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

62. (Currently amended) A mobile communications system comprising:

- a mobile terminal;
- a core network for packet switching; and
- a radio network controller to control a radio network,

wherein a first Signaling Connection Control Part (SCCP) signaling connection for said mobile terminal and second SCCP signaling connection for a broadcast or multicast service are set on an interface between said core network and said radio network controller, said radio network controller initiates the first SCCP signaling connection for said mobile terminal,

said core network comprises an SGSN (Serving GPRS (Global Packet Radio Service) Support Node), and

wherein said SGSN manages said second SCCP signaling connection.

63. (Currently amended) A mobile communications method used in a mobile communications system having a core network for packet switching and a radio network controller to control a radio network, comprising:

- a step of setting a first Signaling Connection Control Part (SCCP) signaling connection for a first communications service on an interface between said core network and said radio network controller; and
- a step of setting a second SCCP signaling connection for a second communications service and

said core network initiates a request for said second SCCP signaling connection to said radio network controller.

Serial No. 10/678,105
Docket No. 02-293137 (YAN.038)

64. (Currently amended) A mobile communication method used in a mobile communications system having a mobile terminal, a core network for packet switching and a radio network controller to control a radio network, comprising:

setting a first Signaling Connection Control Part (SCCP) signaling connection for said mobile terminal on an interface between said core network and said radio network controller; and

setting a second SCCP signaling connection for a-e a broadcast or multicast service on said interface,

wherein the radio network controller initiates said first SCCP signaling connection for said mobile terminal, and

said core network comprises a SGSN (Serving GPRS (Global Packet Radio Service) Support Node), and said SGSN manages said second SCCP signaling connection.